stretch from surface to surface without intercellular spaces. Consequently the width of the lines of starch produced at the edge of the darkened region is not widened even though the unlighted area is supplied with CO_2 under abnormal pressure. If the net be coarse the zone of marginal starch will be wider than if it is fine. Diffusion of self-produced CO_2 to 2.5^{cm} at most is thus possible; for in parallel-veined leaves of Triticum, Hordeum, and Zea, though the veins do not prevent diffusion, the intercellular passages are so narrow as to limit it to 3^{cm}. In Tradescantia and Acorus the transverse anastomoses prevent more extensive movement. In Eichhornia, Pontederia, and Eucomis the leaves have spacious intercellular passages, and so the movement is much more free. But even here the diffusion scarcely surpasses 3^{cm}, unless through a region of the leaf that is not in condition to act on the CO_2. In nature, therefore, movement of CO_2 may be considered practically nil.—C. R. B.

Seedling of a graft-hybrid.—Certain branches of the graft hybrid, *Cytisus Adami*, revert, producing flowers having the characters of the reputed parents *C. Laburnum* and *C. purpureus* respectively. The *C. Adami* flowers are ordinarily sterile, while those borne on reverted branches reproduce their respective parents.

In May, 1904, HILDEBRAND[35] observed that several flowers of a *C. Adami* branch of a cultivated specimen in the Freiburg botanical garden had set seed, and was able to obtain three fruits from them, which had chiefly the characters of *C. Laburnum*, but in certain respects resembled *C. purpureus*. It is not known whether these flowers were self-pollinated, but it is not unlikely that the pollen came from *C. Laburnum* flowers, since the *C. Adami* flowers are usually sterile. Two of the seeds germinated. Both were very similar in character to *C. Laburnum* and in 1907 one of them produced hundreds of flowers, all having the characters of *C. Laburnum*. No conclusions can be drawn regarding the hereditary bearing of these facts, in the absence of a knowledge of the manner of pollination of the flowers and the nature of the next generation of offspring.—R. R. GATES.

Chlorophyll.—The discussion as to the phosphorus content of chlorophyll waxes warm. STOKLASA replies vigorously[36] to TSWETT'S criticisms[37] and takes issue with WILLSTÄTTER'S results.[38] The question is yet in the stage of polemic

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[35] HILDEBRAND, FRIEDRICH, Ueber Sämlinge von *Cytisus Adami*. Ber. Deutsch. Bot. Gesells. **26a**:590–595. 1908.

[36] STOKLASA, J., BRALIK, V., UND ERNST, A., Zur Frage des Phosphorgehaltes des Chlorophylls. Ber. Deutsch. Bot. Gesells. **27**:10–20. 1909.

[37] TSWETT, M., Ist der Phosphor an dem Anbau des Chlorophylline beteiligt? *Ibid.* **26a**:214–220. 1908.

[38] WILLSTÄTTER, R., Zur Kenntniss der Zusammensetzung des Chlorophylls. Liebig's Annalen der Chemie **350**:48–82. 1906.

WILLSTÄTTER, R., UND BENZ, M., Ueber krystallisiertes Chlorophyll. *Ibid.* **358**: 267–287. 1907.